



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE	<i>Application Number</i>	09/550,163
	<i>Filing Date</i>	14 April 2000
	<i>First Named Inventor</i>	Geoffrey W. Abbott et al.
	<i>Group Art Unit</i>	1633
	<i>Examiner Name</i>	Whiteman, B.
	<i>Attorney Docket Number</i>	2323-150
<i>Title of the Invention: MINK-RELATED GENES, FORMATION OF POTASSIUM CHANNELS AND ASSOCIATION WITH CARDIAC ARRHYTHMIA</i>		

DECLARATION UNDER 37 C.F.R. § 1.131

Assistant Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

We, Steve A.N. Goldstein, Geoffrey W. Abbott, Igor Splawski, Federico Sesti and Mark T. Keating, the applicants for the above-identified patent application, declare as follows:

1. That some time on or prior to November 4, 1998, the DNA sequence identified in the instant application had been determined. That is, a KCNE2 gene sample had been sequenced and found to have the nucleotide sequence of SEQ ID NO:1 and the amino acid sequence of SEQ ID NO:2, each of which is disclosed on the above referenced U.S. patent application.
2. That some time prior to November 4, 1998, SEQ ID NO:2 had been determined.
3. SEQ ID NO:2 was determined from the analysis of nucleotide sequence data obtained on an ABI automatic DNA sequencer at Yale University, New Haven CT.
4. The date of the determination for each of the amino acids was determined on or before November 4, 1998, from a determination of the DNA sequence encoding SEQ ID NO:2. Copies of an e-mail describing the disclosed amino acid sequence as well as chromatograms and computer software-generated printouts of the nucleotide and amino acid sequences evidencing the determination of the nucleotide and deduced amino acid sequences are attached hereto.

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TECH CENTER 1600/2900

5. The e-mail and chromatographic records indicate that SEQ ID NO:2 was discovered on or before November 4, 1998. All dates have been redacted in the attached photocopy of the relevant laboratory notebook pages so as to maintain the confidentiality of the actual date of invention.

6. It is further declared that the accompanying exhibits may not be a complete record of applicant's data concerning the invention of the instant patent application and are not necessarily meant to represent the earliest date of conception. The accompanying exhibits are presented solely to prove a completion of the invention prior to the dates of the Strausberg prior art references, Accession Numbers AI339609 and AI246239, cited by the Examiner in the Office Action dated 30 August 2001.

The declarant further states that the above statements were made with the knowledge that willful false statements and the like are punishable by fine and/or imprisonment, or both, under Section 1001, Title 18 of the United States Code, and that any such willful false statement may jeopardize the validity of this application or any patent resulting therefrom.

May 6, 2002
Date:

May 15, 2002
Date:

Date:

Date:

Date:

By:

Steve A.N. Goldstein
Steve A.N. Goldstein

Geoffrey W. Abbott
Geoffrey W. Abbott

Igor Splawski

Federico Sesti

Mark T. Keating

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Steve A.N. Goldstein
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Geoffrey W. Abbott
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May 6, 2002
Date:

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May 13, 2002
Date:

Date:

By:

Steve A.N. Goldstein
Steve A.N. Goldstein

Geoffrey W. Abbott

Igor Splawski
Federico Sesti

Mark T. Keating

Application No.: 09/550,163



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May 6, 2002
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5-12-02
Date:

By:

Steve A.N. Goldstein
Steve A.N. Goldstein

Geoffrey W. Abbott

Igor Splawski

Federico Sesti

Mark T. Keating
Mark T. Keating

Hi-CPI

*P. ...
N. ...
g. ...*

633 predicted per product Map (1 > 785) Site and Sequence

Enzymes : All 477 enzymes (No Filter)

Settings: Linear, Certain Sites Only, Standard Genetic Code

GGCATCTCCCTCCACCTTTACATAGCCAAATCCAGAAAAGATCCGTTTTCTAACCTTGTTCCGCTATTTTATTATTTAAATTCAGCAGGAGGGA 97
CCGTAGAGGGAGGGTGGAAATGTATCGGTTTAGGCTTTTCTAGGCCAAAGCATTGGAACAGCGGATAAAATAATAATTTAACGTCGTCCTCCT

A S P S H L Y I A K S R K D P F S . P C S P I L L F K L D Q E G
AGCATGTCTACTTTATCCAATTTACACACAGCGTGGAGAGCGTCTTCCGAAGGATTTTATTACTTATATGACAAATGGCGCCAGACACAACAG 194
TCGTACAGATGAAATAGGTTAAAGTGTCTGCGACCTTCTGCAGAAGGCTTCTAAATAATGAATATACCTGTTAACCGCGCTGTTGTGTTGTC
S (M) S T L S (N) F (T) (Q) T L E D V F R R I F I T Y H D N W R O (N) T T

CTGAGCAAGAGGCGCTCAAGCCAAAGTTGATGCTCAGAACTTCTACTATGTCATCTGTACCTCATGGTCATGATTGGAATGTTCTCTTTTCATCAT 291
GACTCGTTCTCCGGGAGGTCGGTTTCAACTACGACTTCTGAAGATGATACAGTGGACATGGAGTACCCTACTAACCTTACAAGAGAAAGTAGTA
A E Q E A L O A K V D A E N F Y Y V I L Y L (H) V M I G M F S F I I
CGTGGCATCCTGGTGAGCACTGTGAAATCCAAGACAGGGGAACACTCCAATGACCCCTACCACAGTACATTGTAGAGGACTGGCAGGAAAAGTAC 389
GCACCGGTAGGACCACTCGTACACTTTAGGTTCTCTGCCCTTGTGAGGTTACTGGGGATGGTGGCTATGAACATCTCCTBACCGCTCTTTTCATG

V A I L V S T V K S K R R E H S N D P Y H Q Y I V E D W O E K Y
AAGAGCCAAATCTGAATCTAGAAGCAATCGAAGGCCACCATCCATGAGAACATTGGTCCGGCTGGGTTCAAATGTCCCTCATAAGGGAGAAAGG 485
TTCTCGGTTTGAAGCTTAGATCTTCTAGCTTCCGGTGGTAGTACTCTTGTAAACACGCCGACCCAAGTTTTACAGGGGACTATTCCTCTTTTC

K S Q I L N L E E S K A T I H E N I C A A G F K M S P *STOP* G R K
CACCAAGCTAACATCTGACGTCCAGACATGAAGAGATGCCAGTGCCAGGCAAAATCCAAATTGTCTTTGCTTAGAAGAAAGTGAGTTCTTGTCTC 582
GTGGTTCCATTGTAGACTGCAGGTCTGTACTTCTCTACGGTCACGGTGCTCCGTTAGGTTTACAGAAAAGCAATCTTCTTCACTCAAGGAACGAG

A P S . H L T S R H E E M P V P R G K S K L S L L R R K . V P C S
TTTGTGAGAATTTTCATGGAGATTATGTGGTGGCCAATAAAGATAGATGACATTTCAATCTCACTGATTTATGCTTGTGTTGGAGCAATATTT 679
AAACAACCTCTTAAAGTACCTCTAATACACCAACCGGTTATTCTATCTACTGTAAGTTAGAGTCACTAAATACGAACGAACAACCTCGTTATAAA

L L R I F M E I M W L A N K D R . H F N L S D L C L L V G A I F
TGTGCTGAAGACCTCTTTTACTTTCCGGCAAGTGAATGTCAATTTAATCAATCAATGATGAAAATAAAGCCAAATTTGAAGTAAAGTGTCTGGG 776
ACACGACTTCTGGAGAAAATGAAGGCCCGTCACTTACAGTAAAATTAGTTATAGTTACTACTTTTATTTCCGTTTAAACTTCATTTACAGACCC

C A E D L F Y F P G K . M S F . S I S M M K I K P N L K . S V W

CAGTGGCGC
GTCACCGCG 785

A V A



Model 377
Version 3.2
ABI100
Version 3.2

MBUC-633-P68-633760B
Marianne Buck
MBUC-633-P68-633760B
Lane 27

Signal G72 A:116 C:72 T:104
DT (dR Set Any-Prime)
DRhod Inet 100000085
Points 687 to 8852 PK 1 Loc: 653

Spacing: 10.04(10.04)

Page 1 of 2

10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160

C93 prod. PK prod. variations ok. (banned bot. strand.)

170 180 190 200 210 220 230 240 250 260 270 280 290 300 310 320

330 340 350 360 370 380 390 400 410 420 430 440 450 460 470 480

490 500 510 520 530 540 550 560 570 580 590 600 610 620 630 640 650 660

670 680 690 700 710 720 730 740 750 760 770 780 790 800 810 820 830 840 850



Model 377
Version 3.2
ABI 00
Version 3.2

MBUC-633-P68-73
Marianne Buick
MBUC-633-P68-73
Lane 28

Signal G:104 A:188 C:108 T:143
DT (DR Set Any-Prims)
Rhod Inel 100000085
Points 749 to 8852 Pk 1 Loc: 749

Spacing: 10.07(10.07)

10 20 30 40 50 60 70 80 90 100

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3100

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From: Steve Goldstein
To: Igor Splawski,
CC: Geoffrey Abbott
Reply to: RE>
Dear Igor,

First, congratulations on finishing your defense!
Second, Let me introduce you to Geoff Abbott who is the Postdoctoral Fellow
running this project.
Finally, here is the confirmed information:

MIRP1 (human) - Mink related protein 1

Chromosomal location 21q11.1

Acc No. AF071002

Genomic fragment from HGS is NCBI file AP000052 and gene is at about 80,250

The coding sequence is on one exon.

For sequence of the cDNA below:
In frame stop 26-8
Start ATG 74-6
Stop TGATAA 443-8

The cDNA sequence is:

```
caaatccagaaaagatccgttttccTAacctgttcgcctattttattttaaatgcagcaggagggaagcATGtctac
ttatccaatttcacacagacgctggaagacgtctccgaaggattttattacttatATGgacaattggcgccagaacac
aacagctgagcaagaggccctccaagccaaagtgtgctgagaaacttctactatgtcatcctgtacctcatgtgatgat
tggaaatgttctcttcatcatcggtggccatcctgttgagcaacttgaaatccaagagacgggaacactccaatgaccoccta
ccaccagtacattgtagaggactggcaggaaaagtacaagagccaaatctgaatctagaagaatcgaaggccaccatcca
tgagaacattggtgctgggtgcaaaatgtcccccTGAtaaggaggaaaaggcccaagctaacatctgaggtccagaca
tgaagagatgccagtgccacgaggcaaatccaaatgtcttgctagaagaaagtgaattcctgtctctgttgagaaat
tttcatggagattatgtggttggccaataaagatagatgacatttcaatctcagtgatttatgctgtctgttggagcaat
atttgtgctgaagacctctttacttccgggcaagtgaatgtcattttaatcaatatcaatgatgaaaataaagccaaa
ttt
```

The amino acid sequence is 123 residues:

```
MSTLSNFTQTLEDVFRRIFFITYMDNWRQNTTAEQEALQAKVDAENFYVILYLMVMIGMFSFIIVAILVSTVKSQRREHSN
DPYHQYIVEDWQEKYKSQLNLEESKATIHENIGAAGFKMSP
```

Good hunting and keep us up-dated!!!
Steve and Geoff

P.S. Regarding some of your other questions - we have 3 other subfamilies. The
MIRP1 Northern has been done on the rat isolate and is positive in heart and
skeletal muscle. The human cDNA was cloned from an adult heart library.

P.P.S. Please keep in mind that this is unpublished information and it is a
highly competitive point in time. The information should be kept carefully
within our labs. Thank you!